

REMARKS

By this Amendment, Claims 35, 36 and 38 have been amended. Claim 35 recites that the particles produced from laser vaporization of a first target comprising copper and a second target comprising zinc comprise nanosized particles of a Cu-Zn alloy. Support for this change can be found in paragraphs 24-25 of the specification as filed. Claim 36 has been amended to make the preamble consistent with Claim 35 from which it depends. Claim 38 has been amended to recite a catalyst comprising Zn or Cu-Zn nanoparticles. As no new matter has been introduced by these changes they should be entered at this time. Applicants appreciate notification that Claims 1-30 have been allowed and that Claims 34 and 37 would be allowable if rewritten in independent form. Reconsideration of the Office Action is respectfully requested.

Claims 31-33, 35-36 and 38 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 4,711,773 to Mesters et al. ("Mesters"). This rejection is respectfully traversed.

Independent Claim 31 recites a nanosized particle of Cu/Zn alloy having an average particle size of less than or equal to 20 nm, wherein the nanosized particle is condensed from a laser vaporized material.

Independent Claim 35, as amended, recites a nanosized *Cu-Zn alloy* particle produced by condensation of material from laser vaporization of first and second targets, wherein a first target comprises copper and a second target comprises zinc.

Independent Claim 38, as amended, recites a supported catalytic structure comprising: (i) a catalytic structure; and (ii) a catalyst, wherein the catalyst comprises a plurality of nanoparticles of Zn or Cu/Zn formed by the process of laser vaporization with controlled condensation.

As disclosed in the specification at paragraph 51, "the nanoparticles formed are not just a mixture of separate Cu and Zn powders" (*i.e.*, the nanoparticles comprise an alloy of Cu and Zn). Mesters discloses a catalyst that consists essentially of a refractory oxidic

carrier loaded with metallic copper, including particles of copper having a size of less than 20 nm (See abstract and column 2, lines 34-43). However, Mesters does not disclose a nanosized particle of a Cu-Zn alloy as recited in Claims 31 and 35 or nanoparticles of Zn or Cu/Zn as recited in Claim 38. While Mesters discloses that zinc or its oxide may be present in the catalyst, *i.e.*, as a percentage of the weight of the active metal plus carrier (See column 2, lines 60-68), Mesters fails to disclose that zinc is alloyed with copper. Furthermore, Mesters teaches away from a catalyst comprising nanoparticles of a Cu-Zn alloy. Mesters discloses that in copper catalysts containing zinc oxide as a carrier material, during the process wherein the catalyst is activated "the formation of metallic zinc has to be prevented as this would react with the copper with formation of copper-zinc alloy which would cause irreversible deactivation of the catalyst." (See column 1, lines 52-68).

Mesters discloses that the size of the copper particles is very important and further discloses that a preferred fraction of the *metallic copper* is present as particles of a size of less than 20 nm (See column 3, line 52-column 4, line 11). Applicants submit that the nanosized particles disclosed by Mesters are metallic copper particles and not a nanoscale particle of a Cu/Zn alloy as recited in Claims 31-33 and 35-36 or nanoparticles of Zn or Cu/Zn as recited in Claim 38. Furthermore, Mesters does not disclose or suggest nanoparticles of Zn as recited in Claim 38. As discussed above, Mesters discloses that the formation of metallic zinc has to be prevented.

For at least the reasons discussed above, Applicant respectfully submit that Claims 31-33, 35-36 and 38 are therefore patentable over Mesters. As such, withdrawal of this ground of rejection is respectfully requested.

It is submitted that the difference between the claimed subject matter and the prior art are such that the claimed subject matter, as a whole, would not have been obvious at the time the invention was made to a person having ordinary skill in the art.

In view of the foregoing, it is submitted that the present application is in condition for allowance and such action is earnestly solicited.

Respectfully submitted,

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